Ayush Benedict Singh

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PROFILE

Curious and creative engineer who sees building software as much an art as a science. The same instinct that has me sketching portraits or playing classical pieces on the piano and trumpet drives me to make things that are carefully crafted and genuinely useful to people. I love untangling messy real-world problems, explaining them in plain language and owning them from first idea to something that works. I do my best work in collaborative teams where I can learn fast, share what I know and lift the people around me; away from the keyboard you will find me on the badminton court or playing cricket.

SKILLS

- **Languages:** Python, Java, JavaScript, C++, Dart, SQL
- **Backend & APIs:** FastAPI, Flask, Node.js, Django, Pydantic, REST API design, WebSockets, OpenAPI
- **Frontend & Mobile:** React, Vite, Tailwind CSS, Flutter
- **Cloud & DevOps:** AWS (EC2, S3, CloudFront, Route 53, Cognito, Amplify, Fargate), SAP BTP (CAP), Linux (systemd), nginx, Vercel, Docker, Kubernetes, Terraform, Jenkins, GitHub Actions, CI/CD, Git
- **Data & ML:** TensorFlow, LightGBM, NumPy, time-series forecasting, Monte Carlo simulation, KNN recommender systems, LLM APIs (Gemini, Snowflake Cortex), data pipelines
- **Databases & Testing:** Snowflake, MySQL, NoSQL, Firebase/Firestore, pytest, unit and contract testing, debugging, code review
- **People Skills:** Clear communication with technical and non-technical audiences, cross-country stakeholder collaboration, mentoring, teamwork, technical writing
- **Ways of Working:** Curiosity and fast learning, ownership, creative problem-solving, adaptability, time management, attention to detail

EXPERIENCE

SAP Intern May 2025 – July 2026
Indorama Ventures, Global Shared Services *Kolkata, India*

- Built and tested cloud-native enterprise applications using the SAP Cloud Application Programming (CAP) model on SAP BTP, supporting high-volume financial workflows.
- Diagnosed and resolved critical production defects through deep-dive debugging of enterprise-scale backend systems, tracing logic and data-flow issues across core transactional tables (BSEG, BKPF).
- Sustained the reliability of mission-critical credit control and exchange-rate reporting flows through active ITSM monitoring and rapid defect resolution.
- Validated functionality and configuration for international, multi-entity system rollouts and multi-plant bifurcations supporting global operations.
- Authored end-to-end SDLC documentation, including functional and technical specifications, UAT test scripts and deployment guides, for cross-team and cross-country collaboration.

Frontend ReactJS Intern June 2024 – Aug 2024
Celebal Technologies *Jaipur, India*

- Built user-facing products in React, including an AI-powered chatbot and a functional e-commerce web application, as part of a distributed engineering team.
- Collaborated with product and engineering stakeholders to scope features and iterate on open-ended requirements based on feedback.

Flutter Developer Intern June 2024 – July 2024
Tata Steel *Jamshedpur, India*

- Reduced data-retrieval time by 40% by integrating Firebase into the JRD Sports Club Service Management System.
- Implemented user-management and real-time event-update features, accelerating feature deployment by 25%.
- Cut UI defects by 50% through rigorous testing, improving overall app performance by 35%.

PROJECTS

FLASHCROWD: Real-Time Traffic Surge Forecasting & Autoscaling | *Python, AWS, Snowflake, LightGBM, FastAPI, Gemini, ElevenLabs* Oct 2026

- Built a cloud forecasting system that predicts Wikipedia traffic surges 1–3 hours ahead from the live edit stream and decides how many servers to start in London, New Jersey and Tokyo. On unseen data the team's model was 11× more accurate than a persistence baseline, with a 2-hour median warning.
- Designed and ran the data pipeline on AWS EC2: recorded 1.3M+ live edits and loaded about 28M hourly page-view records into Snowflake with repeat-safe loaders, and used as-of joins so the model never saw future data (verified by leak tests on 665K+ decisions).
- Measured real infrastructure constants by launching servers in three AWS regions (boot time, 254 req/s capacity, latency between regions) and used them in a cost-aware scaling rule that served all traffic with 8–16% fewer server-hours than a reactive autoscaler in replays.
- Built a FastAPI + WebSocket backend serving live forecasts, a self-checking scorecard and game sessions, deployed behind nginx with HTTPS and systemd timers that refresh everything every 15 minutes.
- Added explainable AI to the pipeline: Snowflake Cortex summarises editors' notes and Gemini classifies why each article is surging. Testing showed the labels didn't improve accuracy, so they were used to explain alerts to users rather than as model inputs.
- Built an ElevenLabs voice agent connected to the live API, plus two browser games (JavaScript, Canvas, Web Audio) that let non-technical users experience traffic spikes and autoscaling.

LeaveBy | *FastAPI, React, NumPy, Monte Carlo simulation, Vercel* Oct 2026

- Built a multimodal journey planner that recommends the latest safe departure time by simulating 2,040 scenarios per travel option from a 51-member ECMWF weather ensemble, GB rail timetables and live traffic data; built for the BlackRock "One app. One clear decision" challenge.
- Designed a three-layer FastAPI backend (data adapters, a pure decision engine and a versioned REST API) with an OpenAPI contract test, 3-second timeouts, bounded retries and graceful fallbacks when providers fail.
- Built a React, Vite and Tailwind frontend with live re-ranking by time, cost, carbon and accessibility and charts that make uncertainty visible; deployed the web app and API together on Vercel with pytest and ruff checks.

NimbusCast | *TensorFlow, Flask, Flutter, Firebase* Apr 2024

- Built the Flask backend and API layer serving model inference for an ML-based cloudburst prediction and alerting system used by 50,000+ users.
- Designed and implemented the data pipeline handling multi-sensor ingestion, filtering and processing to deliver real-time warnings at production scale.

WildWestCode | *Flutter, AWS (Amplify, Cognito, EC2, S3, CloudFront, Route 53), GitHub API* Sept 2024

- Designed and deployed scalable, highly available backend services on AWS for a real-time collaborative code editor supporting multiple concurrent users.
- Implemented secure authentication and session management using AWS Cognito, with CloudFront and Route 53 supporting reliable, low-latency delivery.

EDUCATION

MSc Computing Science Sept 2026 – Sept 2027
University of Glasgow *Glasgow, UK*

- Expected graduation September 2027; available for full-time roles from September 2027.

B.Tech, Computer Science and Engineering 2022 – 2026
Sikkim Manipal Institute of Technology *Majitar, India*

- CGPA: 9.34/10; Silver Medallist, ranked in the top 2% of the first-year cohort.
- Relevant modules: Data Structures and Algorithms, Object-Oriented Programming, Operating Systems, Computer Networks, Database Management Systems.

CERTIFICATIONS AND LEADERSHIP

- AWS Certified Cloud Practitioner (2024).
- App Development Core Team, Google Developer Student Club (GDSC), SMIT (2024–2025): mentored juniors through hands-on app development.
- Junior Member, Training and Placement Cell, SMIT (2024–2025): coordinated on-campus company recruitment drives.
- Languages: English (C2, proficient), Hindi (native).